ACC.11
60th Annual Scientific Session & Expo

E657
JACC April 5, 2011
Volume 57, Issue 14

IMAGING AND DIAGNOSTIC TESTING

ASSESSMENT OF PERSISTENCE OF REGIONAL FUNCTIONAL ABNORMALITY IN DIASTOLE AND SYSTOLE AFTER RECOVERY FROM MYOCARDIAL ISCHEMIA BY VELOCITY VECTOR IMAGING

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Sunday, April 03, 2011, 10:00 a.m.-11:15 a.m.

Session Title: Tisue Doppler, Speckle Tracking and Diastolic Function
Abstract Category: 31. General Echocardiography: TTE
Session-Poster Board Number: 1024-190

Authors: *Jian-Ping Bin, Dong-dong Chen, Jue-fei Wu, Yu-lin Liao, Bi-ying Zhou, Wan-ling Xuan, Kai Cui, De-zhong Zheng, Yun-bin Xiao, Ping-sheng Wu, Cardiovascular Division, Nanfang Hospital, Southern Medical University, Guangzhou, People's Republic of China, Department of Pathophysiology,Southern Medical University, Guangzhou, People's Republic of China*

Background: There is a body of evidence to show that the abnormality of regional systolic function (RSF) due to myocardial ischemia persists even after restoration of perfusion. However, whether the persistence of abnormality in regional diastolic function (RDF) after reperfusion acts as RSF remains unclear. Velocity vector imaging (VVI) allows the quantitative assessment of regional myocardial function. We, therefore, were to compare the time course of regional diastolic and systolic abnormality after recovery from different conditions of ischemia by VVI.

Methods: 30 wistar rats were equally divided into one sham and four myocardial ischemia-reperfusion (I/R) groups. I/R models were created by brief occlusion (3, 5, 10 and 15 min, respectively) of the proximal left anterior descending artery followed by reperfusion. VVI was performed at baseline, the end of occlusion and varied time-point after reperfusion (0, 10 to 240 min). Peak diastolic and systolic strain rate (SRdia and SRsys) at short axis view of papillary muscle level were determined. +dP/dt and -dP/dt were evaluated by cardiac catheter.

Results: Both of SRdia and SRsys were significantly decreased in the risk area during occlusion. With the increase of occlusive time, the decrease in SRdia and SRsys during occlusion was gradually incremental, and persistent time (PT) of the decrease in both measurements after reperfusion was rapidly prolonged as well ($P<0.05$). PT of the decrease in both SRdia and SRsys was not significantly different in 3-min I/R group ($P>0.05$), but the PT of the decrease in SRdia was significantly longer than that in SRsys in 5-, 10- and 15-minutes I/R groups ($P<0.05$). At 240 min after reperfusion, the decreased SRdia did not recover to baseline even in the 10-min group, whereas the decreased SRsys recovered completely in the 15-min group. +dP/dt and -dP/dt of left ventricle during occlusion was significantly decreased in all I/R groups ($P<0.05$) and recovered to baseline immediately after reperfusion.

Conclusion: The abnormality of RDF remained longer than that of RSF after recovery from myocardial ischemia. Recent myocardial ischaemic event may be recognized from the evaluation of RDF.